# AIRS June 14 Focus-Day results

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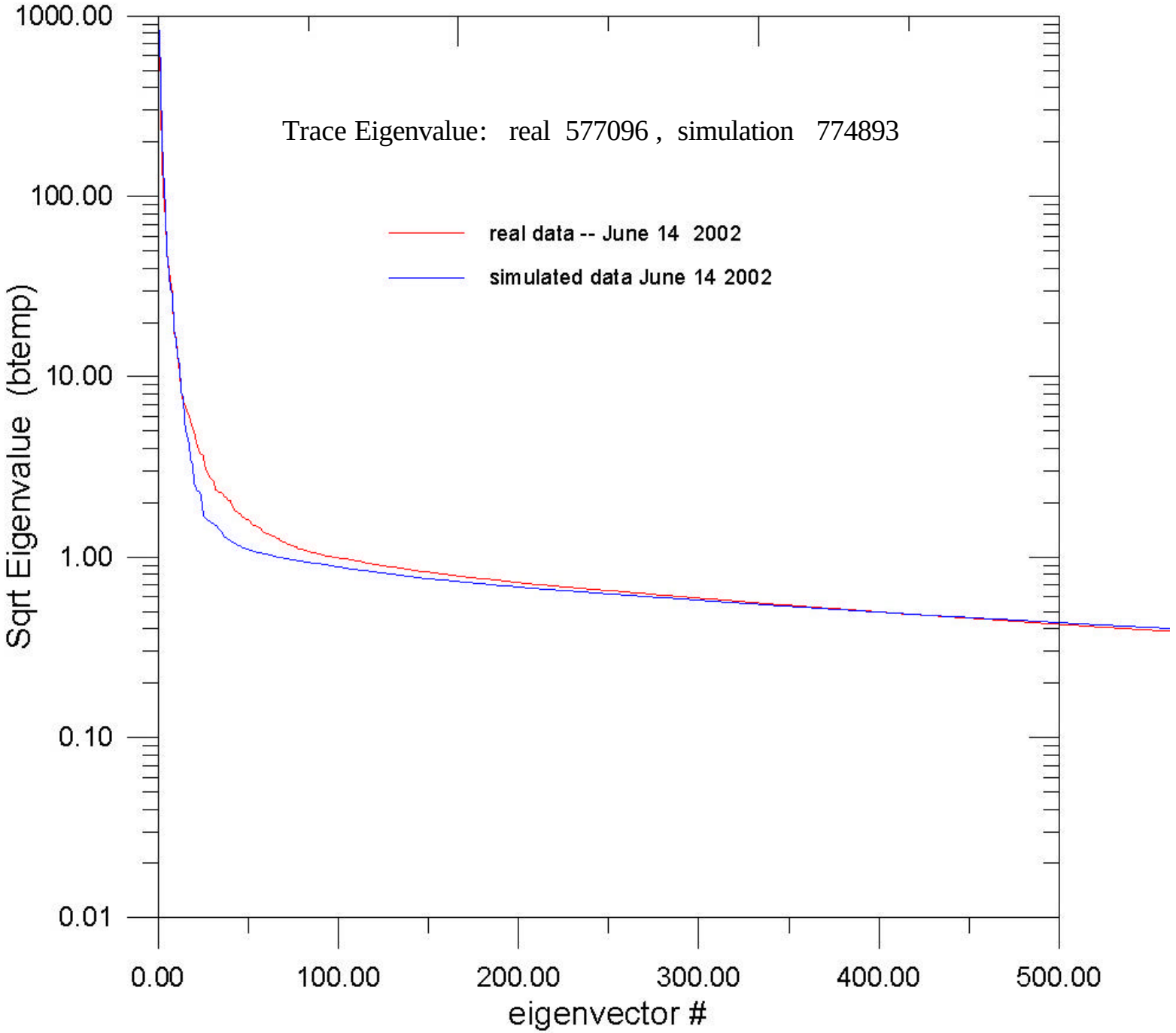
Net-Meeting #2 August 1, 2002

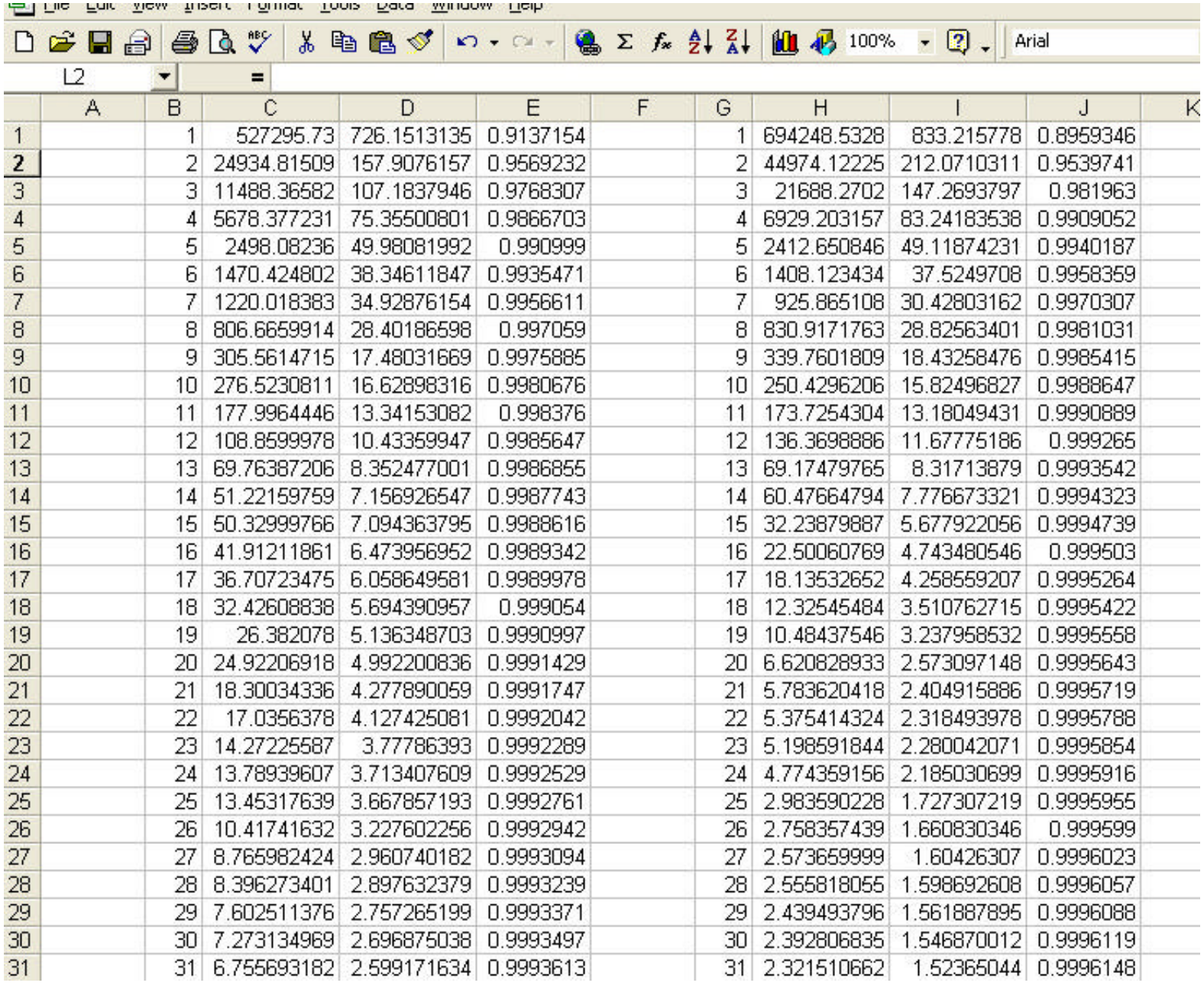
# Overview

- Generated AIRS brightness temperature eigenvectors from June 14 2002.
- Generated regression retrieval coefficients using ECMWF as “truth” using AIRS fovs identified as mostly clear using SST test.
- Applied coefficients and compared with ECMWF

LOG

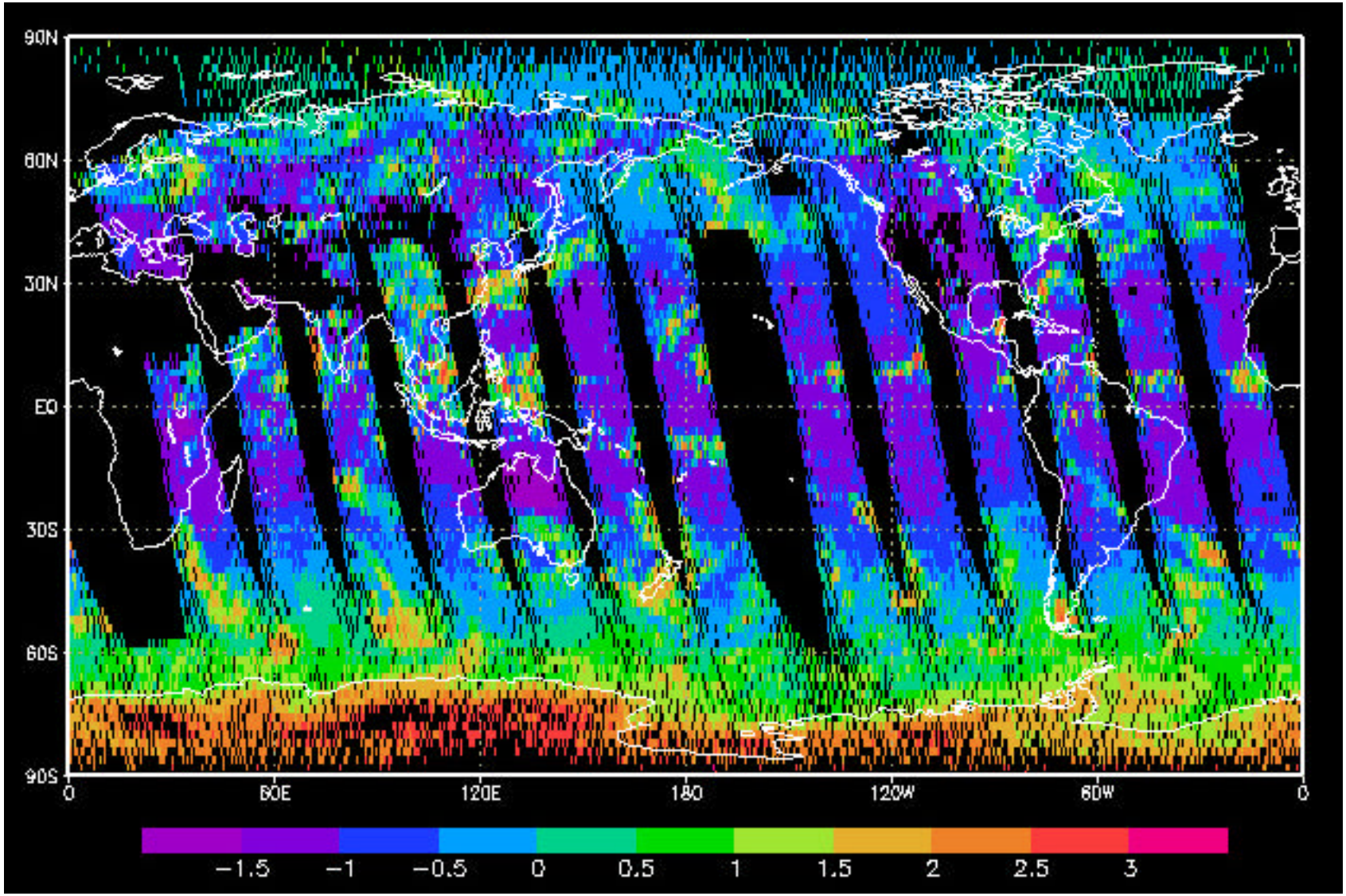

Trace Eigenvalue: real 577096 , simulation 774893
real data -- June 14 2002
simulated data June 14 2002
Sqrt Eigenvalue (btemp)
1000.00
100.00
10.00
1.00
0.10
0.01
0.00
100.00
200.00
300.00
400.00
500.00
eigenvector #

# BT Eigenvalue , SQRT(eval), explained variance [ Real, Simulated]

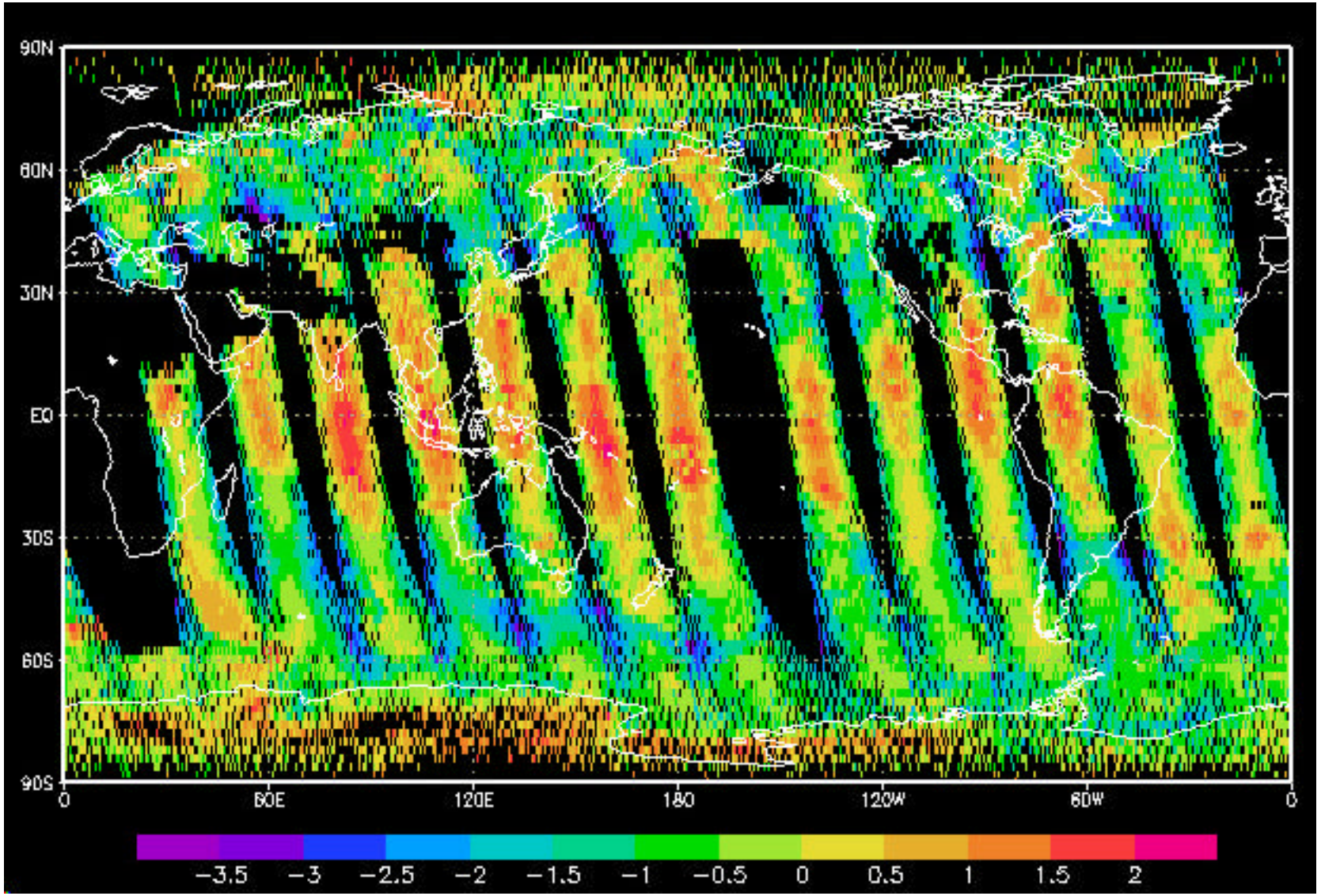


| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 527295.73 | 726.1513135 | 0.9137154 | | 1 | 694248.5328 | 833.215778 | 0.8959346 | |
| 2 | | 2 | 24934.81509 | 157.9076157 | 0.9569232 | | 2 | 44974.12225 | 212.0710311 | 0.9539741 | |
| 3 | | 3 | 11488.36582 | 107.1837946 | 0.9768307 | | 3 | 21688.2702 | 147.2693797 | 0.981963 | |
| 4 | | 4 | 5678.377231 | 75.35500801 | 0.9866703 | | 4 | 6929.203157 | 83.24183538 | 0.9909052 | |
| 5 | | 5 | 2498.08236 | 49.98081992 | 0.990999 | | 5 | 2412.650846 | 49.11874231 | 0.9940187 | |
| 6 | | 6 | 1470.424802 | 38.34611847 | 0.9935471 | | 6 | 1408.123434 | 37.5249708 | 0.9958359 | |
| 7 | | 7 | 1220.018383 | 34.92876154 | 0.9956611 | | 7 | 925.865108 | 30.42803162 | 0.9970307 | |
| 8 | | 8 | 806.6659914 | 28.40186598 | 0.997059 | | 8 | 830.9171763 | 28.82563401 | 0.9981031 | |
| 9 | | 9 | 305.5614715 | 17.48031669 | 0.9975885 | | 9 | 339.7601809 | 18.43258476 | 0.9985415 | |
| 10 | | 10 | 276.5230811 | 16.62898316 | 0.9980676 | | 10 | 250.4296206 | 15.82496827 | 0.9988647 | |
| 11 | | 11 | 177.9964446 | 13.34153082 | 0.998376 | | 11 | 173.7254304 | 13.18049431 | 0.9990889 | |
| 12 | | 12 | 108.8599978 | 10.43359947 | 0.9985647 | | 12 | 136.3698886 | 11.67775186 | 0.999265 | |
| 13 | | 13 | 69.76387206 | 8.352477001 | 0.9986855 | | 13 | 69.17479765 | 8.31713879 | 0.9993542 | |
| 14 | | 14 | 51.22159759 | 7.156926547 | 0.9987743 | | 14 | 60.47664794 | 7.776673321 | 0.9994323 | |
| 15 | | 15 | 50.32999766 | 7.094363795 | 0.9988616 | | 15 | 32.23879887 | 5.677922056 | 0.9994739 | |
| 16 | | 16 | 41.91211861 | 6.473956952 | 0.9989342 | | 16 | 22.50060769 | 4.743480546 | 0.999503 | |
| 17 | | 17 | 36.70723475 | 6.058649581 | 0.9989978 | | 17 | 18.13532652 | 4.258559207 | 0.9995264 | |
| 18 | | 18 | 32.42608838 | 5.694390957 | 0.999054 | | 18 | 12.32545484 | 3.510762715 | 0.9995422 | |
| 19 | | 19 | 26.382078 | 5.136348703 | 0.9990997 | | 19 | 10.48437546 | 3.237958532 | 0.9995558 | |
| 20 | | 20 | 24.92206918 | 4.992200836 | 0.9991429 | | 20 | 6.620828933 | 2.573097148 | 0.9995643 | |
| 21 | | 21 | 18.30034336 | 4.277890059 | 0.9991747 | | 21 | 5.783620418 | 2.404915886 | 0.9995719 | |
| 22 | | 22 | 17.0356378 | 4.127425081 | 0.9992042 | | 22 | 5.375414324 | 2.318493978 | 0.9995788 | |
| 23 | | 23 | 14.27225587 | 3.77786393 | 0.9992289 | | 23 | 5.198591844 | 2.280042071 | 0.9995854 | |
| 24 | | 24 | 13.78939607 | 3.713407609 | 0.9992529 | | 24 | 4.774359156 | 2.185030699 | 0.9995916 | |
| 25 | | 25 | 13.45317639 | 3.667857193 | 0.9992761 | | 25 | 2.983590228 | 1.727307219 | 0.9995955 | |
| 26 | | 26 | 10.41741632 | 3.227602256 | 0.9992942 | | 26 | 2.758357439 | 1.660830346 | 0.999599 | |
| 27 | | 27 | 8.765982424 | 2.960740182 | 0.9993094 | | 27 | 2.573659999 | 1.60426307 | 0.9996023 | |
| 28 | | 28 | 8.396273401 | 2.897632379 | 0.9993239 | | 28 | 2.555818055 | 1.598692608 | 0.9996057 | |
| 29 | | 29 | 7.602511376 | 2.757265199 | 0.9993371 | | 29 | 2.439493796 | 1.561887895 | 0.9996088 | |
| 30 | | 30 | 7.273134969 | 2.696875038 | 0.9993497 | | 30 | 2.392806835 | 1.546870012 | 0.9996119 | |
| 31 | | 31 | 6.755693182 | 2.599171634 | 0.9993613 | | 31 | 2.321510662 | 1.52365044 | 0.9996148 | |

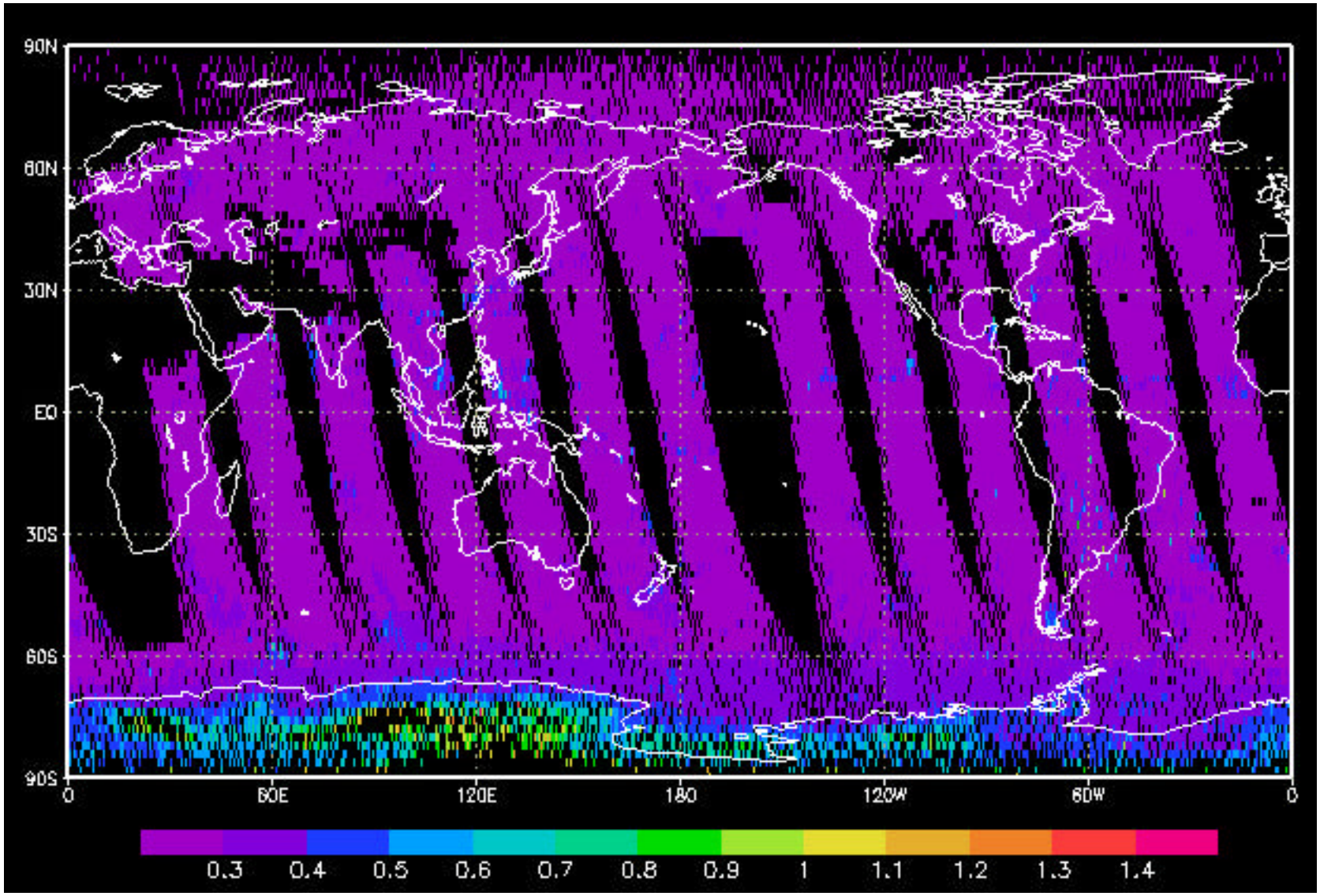
# First PC Score



# Fifth PC Score

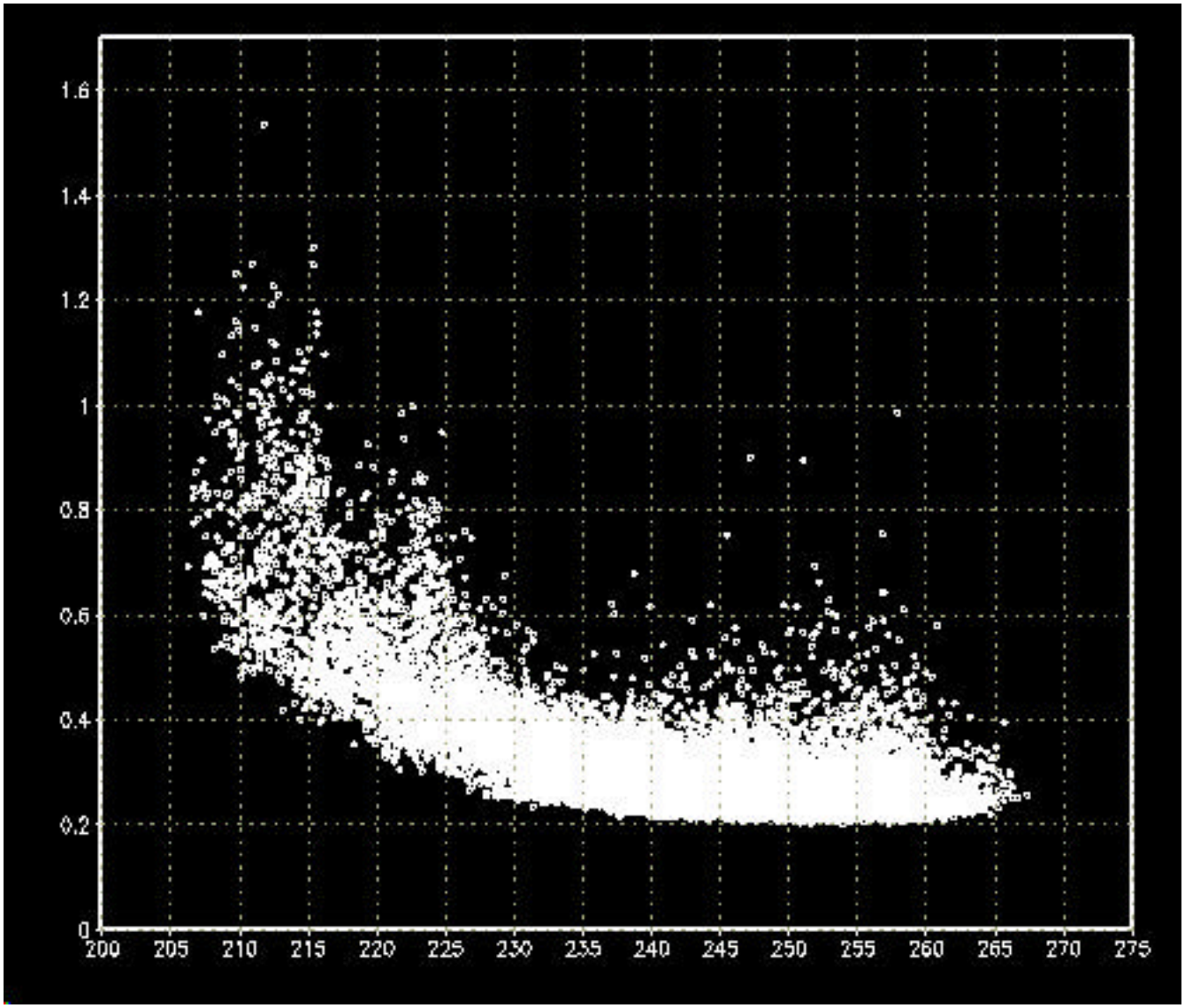


# Brightness temperature reconstruction score

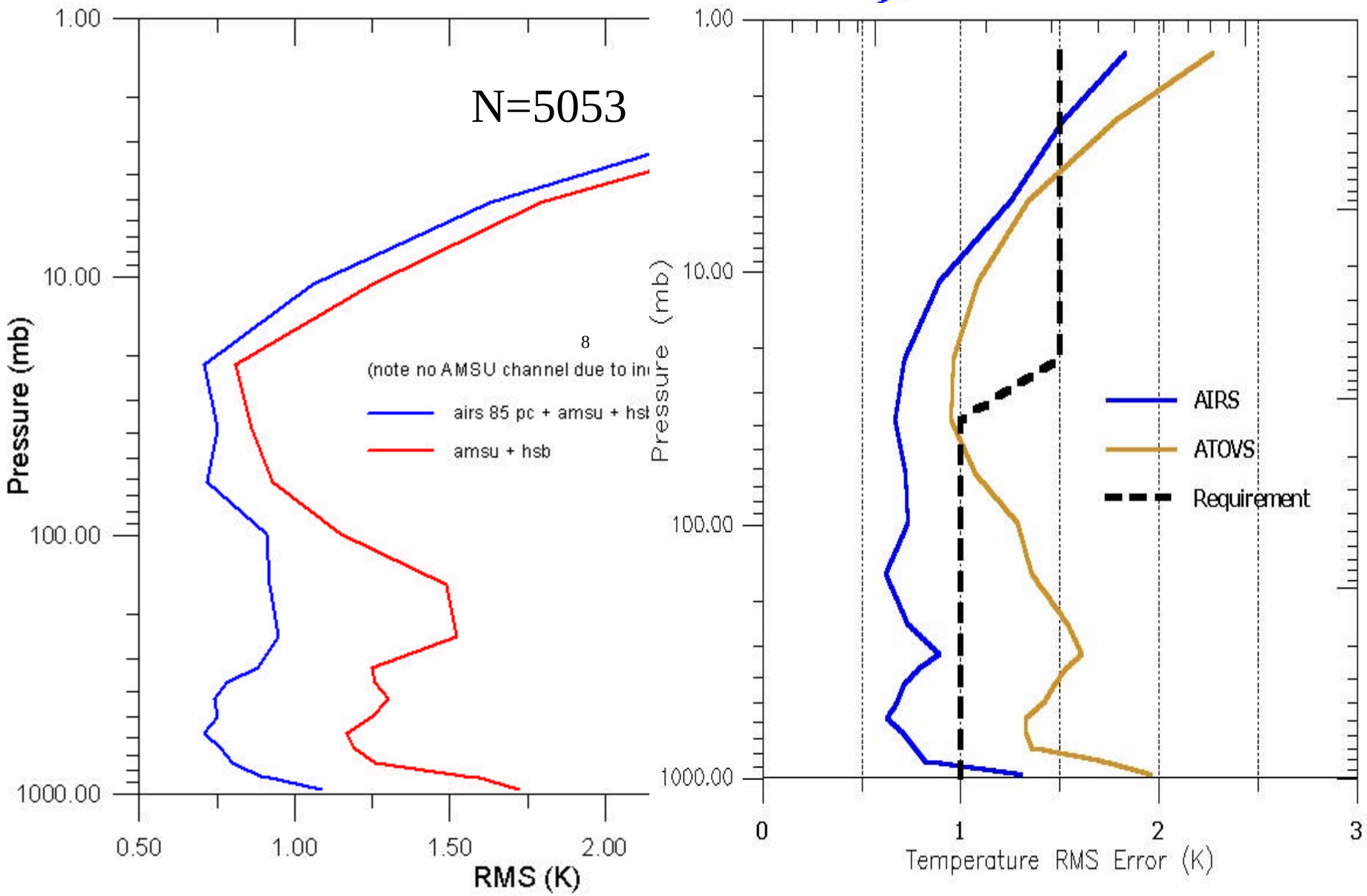



Mean = .25 K  with sdv of 0.04 K

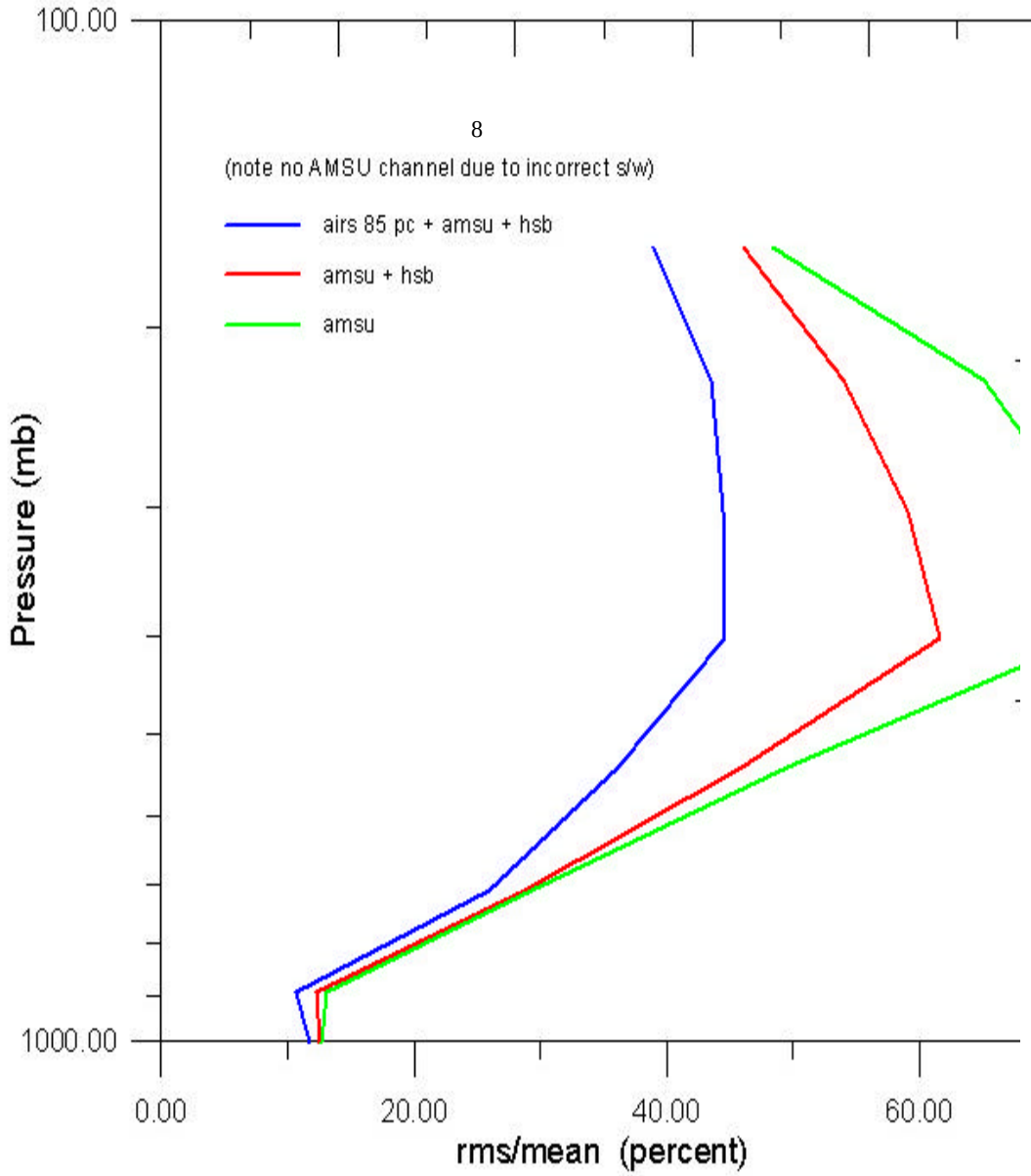
# Score vs. AMSU channel 5 brightness temperature

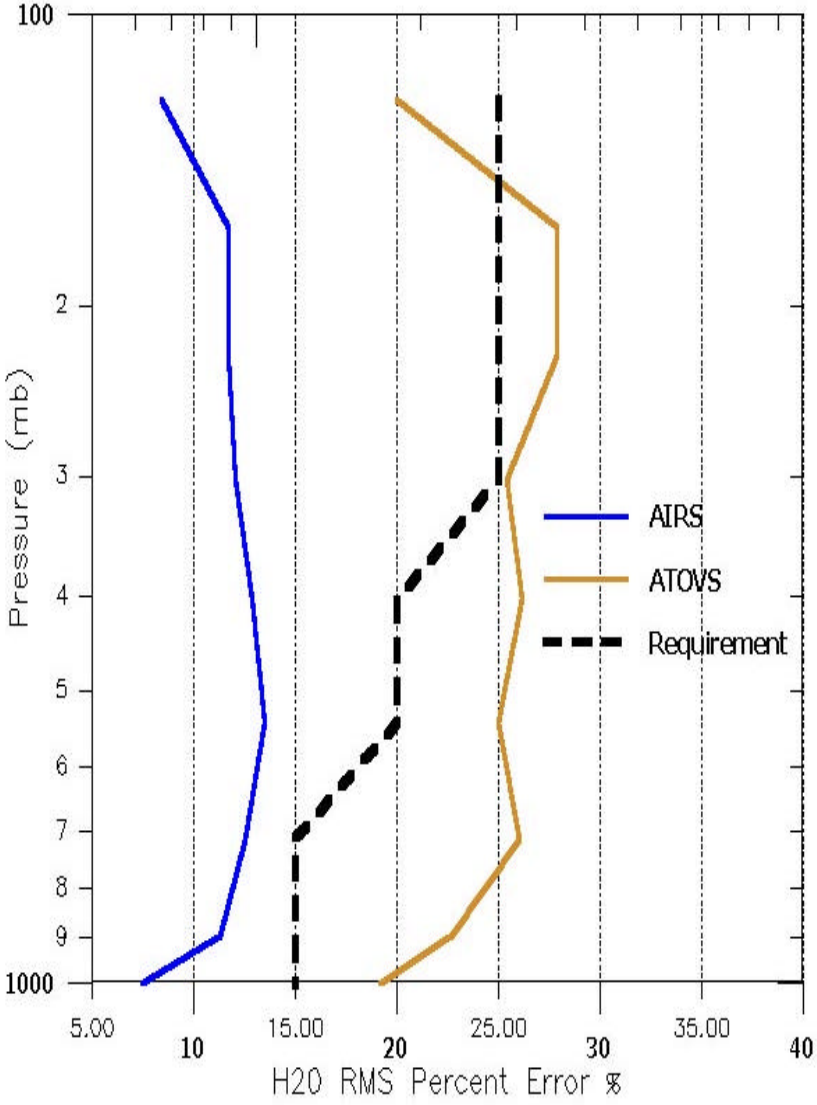


# Regression prediction of ECWMF Temperature

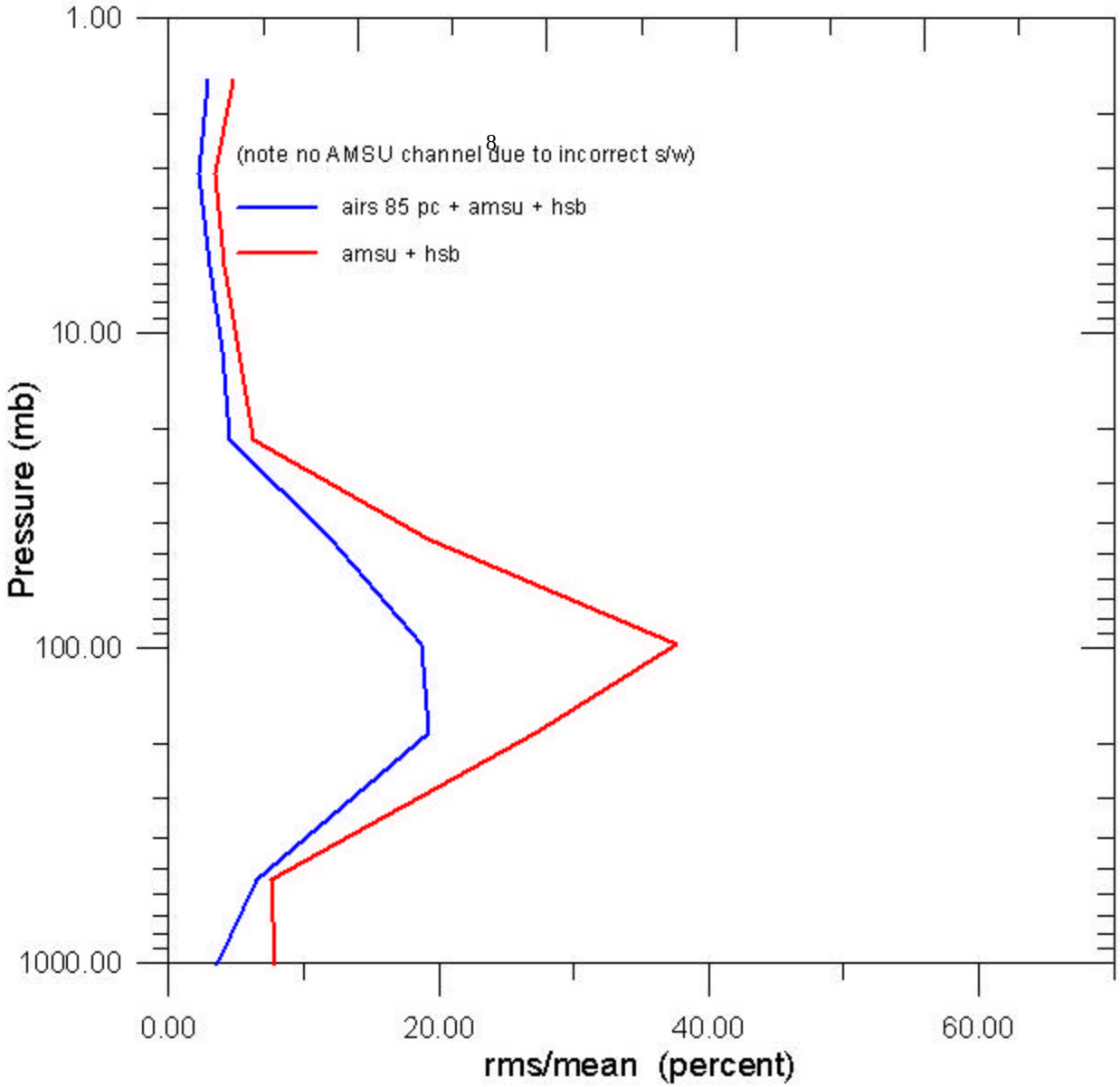


# Regression prediction of ECWMF moisture

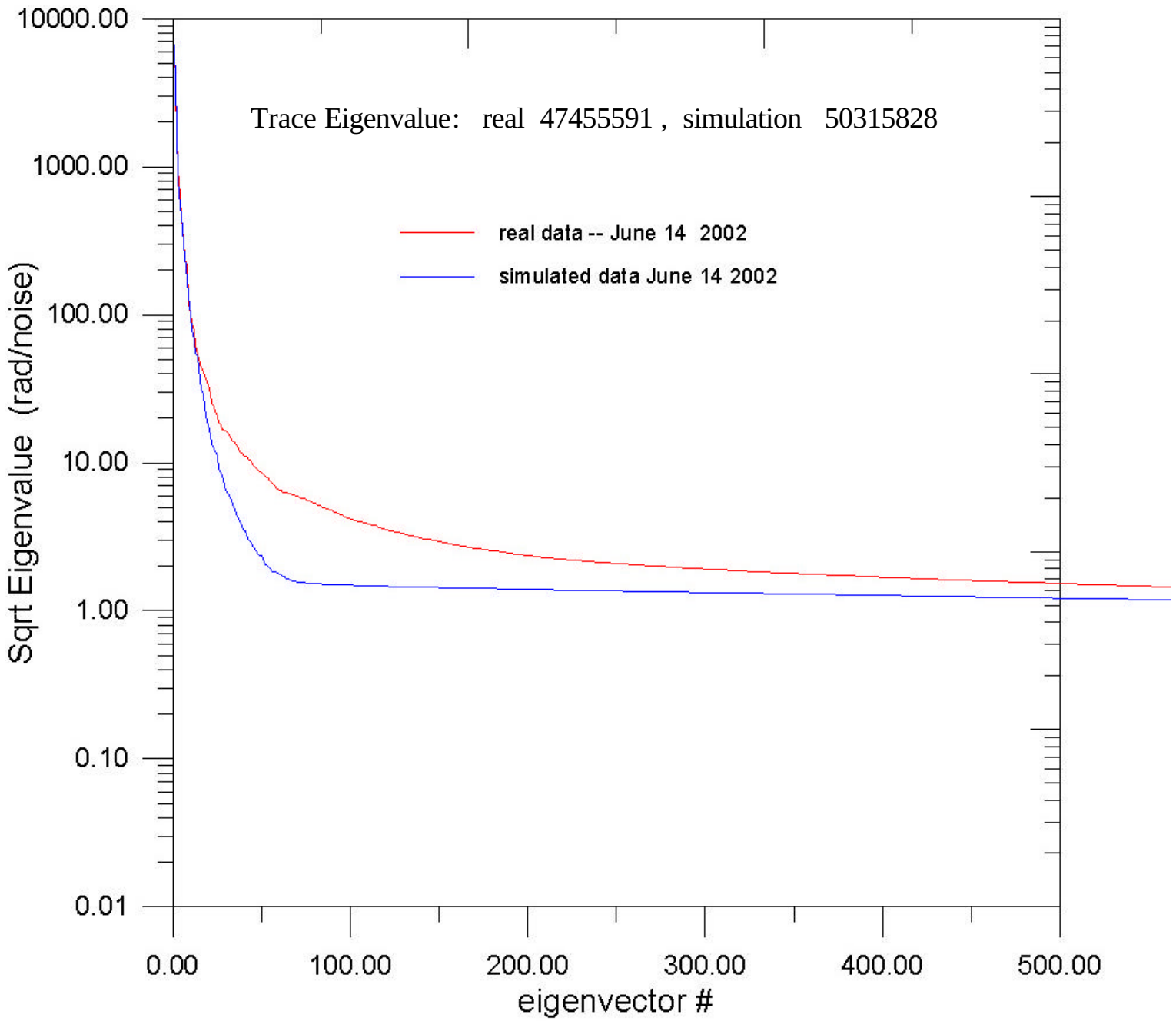


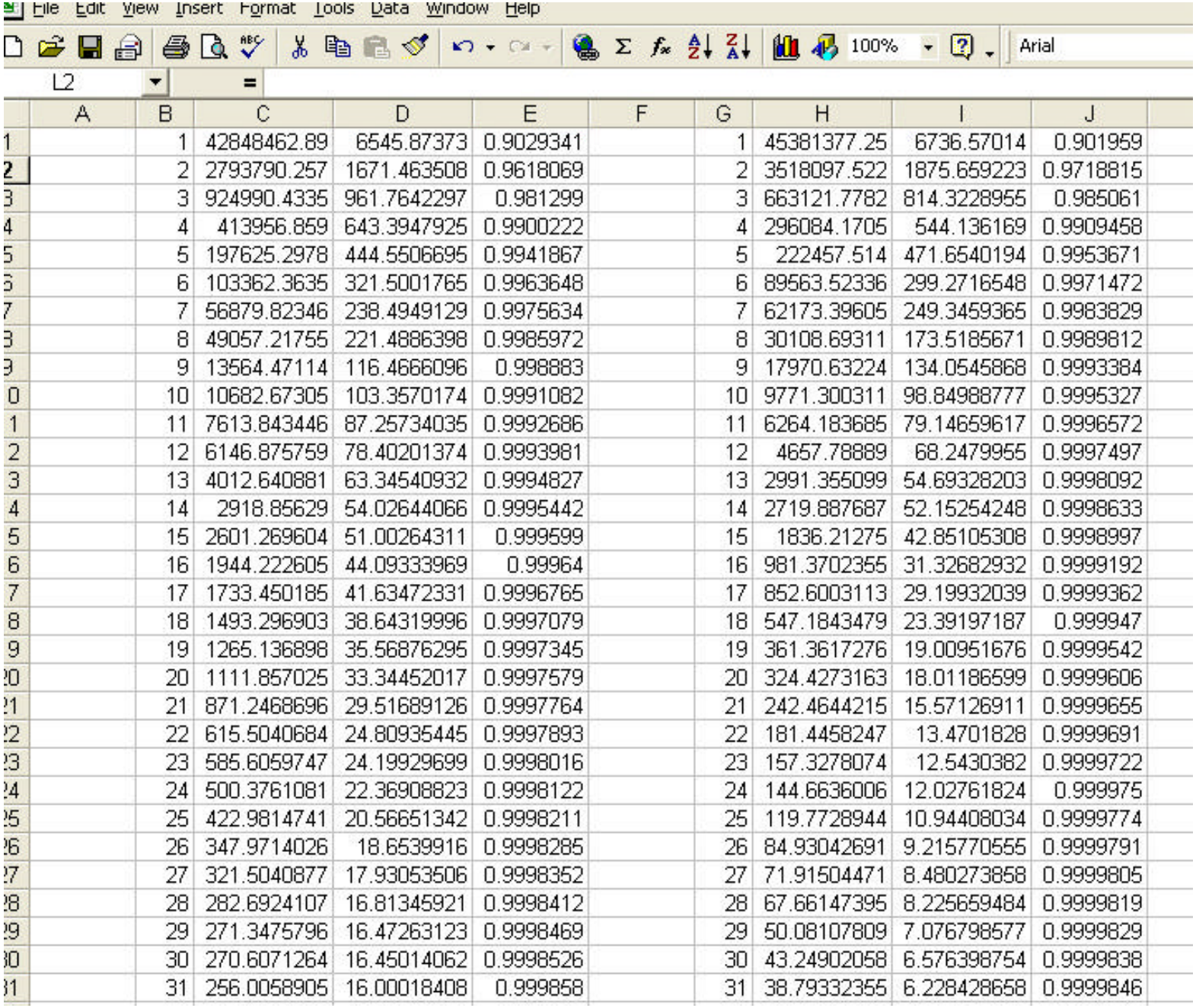
# Regression prediction of ECWMF ozone



LOG


Trace Eigenvalue: real 47455591 , simulation 50315828
real data -- June 14 2002
simulated data June 14 2002
Sqrt Eigenvalue (rad/noise)
10000.00
1000.00
100.00
10.00
1.00
0.10
0.01
0.00
100.00
200.00
300.00
400.00
500.00
eigenvector #

# Rad/n  Eigenvalue , SQRT(eval), explained variance [ Real, Simulated]



File Edit View Insert Format Tools Data Window Help

100% Arial

L2 =

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 42848462.89 | 6545.87373 | 0.9029341 | | 1 | 45381377.25 | 6736.57014 | 0.901959 |
| 2 | | 2 | 2793790.257 | 1671.463508 | 0.9618069 | | 2 | 3518097.522 | 1875.659223 | 0.9718815 |
| 3 | | 3 | 924990.4335 | 961.7642297 | 0.981299 | | 3 | 663121.7782 | 814.3228955 | 0.985061 |
| 4 | | 4 | 413956.859 | 643.3947925 | 0.9900222 | | 4 | 296084.1705 | 544.136169 | 0.9909458 |
| 5 | | 5 | 197625.2978 | 444.5506695 | 0.9941867 | | 5 | 222457.514 | 471.6540194 | 0.9953671 |
| 6 | | 6 | 103362.3635 | 321.5001765 | 0.9963648 | | 6 | 89563.52336 | 299.2716548 | 0.9971472 |
| 7 | | 7 | 56879.82346 | 238.4949129 | 0.9975634 | | 7 | 62173.39605 | 249.3459365 | 0.9983829 |
| 8 | | 8 | 49057.21755 | 221.4886398 | 0.9985972 | | 8 | 30108.69311 | 173.5185671 | 0.9989812 |
| 9 | | 9 | 13564.47114 | 116.4666096 | 0.998883 | | 9 | 17970.63224 | 134.0545868 | 0.9993384 |
| 10 | | 10 | 10682.67305 | 103.3570174 | 0.9991082 | | 10 | 9771.300311 | 98.84988777 | 0.9995327 |
| 11 | | 11 | 7613.843446 | 87.25734035 | 0.9992686 | | 11 | 6264.183685 | 79.14659617 | 0.9996572 |
| 12 | | 12 | 6146.875759 | 78.40201374 | 0.9993981 | | 12 | 4657.78889 | 68.2479955 | 0.9997497 |
| 13 | | 13 | 4012.640881 | 63.34540932 | 0.9994827 | | 13 | 2991.355099 | 54.69328203 | 0.9998092 |
| 14 | | 14 | 2918.85629 | 54.02644066 | 0.9995442 | | 14 | 2719.887687 | 52.15254248 | 0.9998633 |
| 15 | | 15 | 2601.269604 | 51.00264311 | 0.999599 | | 15 | 1836.21275 | 42.85105308 | 0.9998997 |
| 16 | | 16 | 1944.222605 | 44.09333969 | 0.99964 | | 16 | 981.3702355 | 31.32682932 | 0.9999192 |
| 17 | | 17 | 1733.450185 | 41.63472331 | 0.9996765 | | 17 | 852.6003113 | 29.19932039 | 0.9999362 |
| 18 | | 18 | 1493.296903 | 38.64319996 | 0.9997079 | | 18 | 547.1843479 | 23.39197187 | 0.999947 |
| 19 | | 19 | 1265.136898 | 35.56876295 | 0.9997345 | | 19 | 361.3617276 | 19.00951676 | 0.9999542 |
| 20 | | 20 | 1111.857025 | 33.34452017 | 0.9997579 | | 20 | 324.4273163 | 18.01186599 | 0.9999606 |
| 21 | | 21 | 871.2468696 | 29.51689126 | 0.9997764 | | 21 | 242.4644215 | 15.57126911 | 0.9999655 |
| 22 | | 22 | 615.5040684 | 24.80935445 | 0.9997893 | | 22 | 181.4458247 | 13.4701828 | 0.9999691 |
| 23 | | 23 | 585.6059747 | 24.19929699 | 0.9998016 | | 23 | 157.3278074 | 12.5430382 | 0.9999722 |
| 24 | | 24 | 500.3761081 | 22.36908823 | 0.9998122 | | 24 | 144.6636006 | 12.02761824 | 0.999975 |
| 25 | | 25 | 422.9814741 | 20.56651342 | 0.9998211 | | 25 | 119.7728944 | 10.94408034 | 0.9999774 |
| 26 | | 26 | 347.9714026 | 18.6539916 | 0.9998285 | | 26 | 84.93042691 | 9.215770555 | 0.9999791 |
| 27 | | 27 | 321.5040877 | 17.93053506 | 0.9998352 | | 27 | 71.91504471 | 8.480273858 | 0.9999805 |
| 28 | | 28 | 282.6924107 | 16.81345921 | 0.9998412 | | 28 | 67.66147395 | 8.225659484 | 0.9999819 |
| 29 | | 29 | 271.3475796 | 16.47263123 | 0.9998469 | | 29 | 50.08107809 | 7.076798577 | 0.9999829 |
| 30 | | 30 | 270.6071264 | 16.45014062 | 0.9998526 | | 30 | 43.24902058 | 6.576398754 | 0.9999838 |
| 31 | | 31 | 256.0058905 | 16.00018408 | 0.999858 | | 31 | 38.79332355 | 6.228428658 | 0.9999846 |